

IN THE CLAIMS

The following is a complete listing of the claims. This listing replaces all earlier versions and listings of the claims.

Claim 1 (currently amended): A method of generating instructions for a directed ~~adjacency~~ acyclic graph, ~~[[said]] the directed adjacency acyclic graph~~ comprising one or more parent nodes and one or more leaf nodes, each ~~of which said~~ parent node representing an operator and having branches to respective descendent nodes, and each ~~of which said~~ leaf node representing a graphic object having object edges, said method comprising the steps of:

determining groups of one or more pixel locations, wherein the groups are bounded by the object edges;

determining, for each ~~[[said]]~~ group, a portion of ~~[[said]] the~~ directed ~~adjacency~~ acyclic graph in accordance with activities of the operators, wherein the ~~[[said]]~~ portion of the directed ~~adjacency~~ acyclic graph is that portion which passes data up the directed ~~adjacency~~ acyclic graph; and

generating, for each ~~[[said]]~~ group, instructions for the determined portion of the directed ~~adjacency~~ acyclic graph, wherein operator instructions are generated for those operators of the determined portion of the directed ~~adjacency~~ acyclic graph having active branches and wherein leaf instructions are generated for those graphic objects which are active at ~~[[said]] the~~ group of one or more pixel locations.

Claim 2 (currently amended): ~~[[The]] A method as claimed in~~ according to claim 1, wherein said method further comprises the step of generating a table for storing data concerning the activity of the operators and the activity of the branches of the parent nodes.

Claim 3 (currently amended): ~~[[The]] A method as claimed in~~ according to claim 2, wherein said determining step ~~comprises~~ includes the sub-step of updating, for each ~~[[said]]~~ group, the ~~[[said]]~~ data stored in ~~[[said]]~~ the generated table.

Claim 4 (currently amended): ~~[[The]] A method as claimed in~~ according to claim 1, wherein said step of generating instructions ~~comprises a~~ includes the sub-step of traversing ~~[[said]]~~ the determined portion of the directed ~~adjacency~~ acyclic graph and generating instructions for the active operators and the leaf value instructions in ~~[[said]]~~ the determined portion of the directed ~~adjacency~~ acyclic graph.

Claim 5 (currently amended): ~~[[The]] A method as claimed in~~ according to claim 1, wherein ~~[[said]]~~ the directed ~~adjacency~~ acyclic graph is an expression tree.

Claim 6 (currently amended): ~~[[The]] A method as claimed in~~ according to claim 1, wherein ~~[[said]]~~ the parent nodes represent binary operators.

Claim 7 (currently amended): A method of generating instructions for an expression tree, ~~[[said]]~~ the expression tree having a plurality of nodes comprising one or

more binary nodes and a plurality of leaf nodes, wherein each ~~[[said]]~~ binary node ~~having~~ has a left branch to a descendent ~~[[said]]~~ node and a right branch to ~~[[a]]~~ another descendent ~~[[said]]~~ node and ~~representing~~ represents a binary operation on ~~[[said]]~~ the two descendant nodes, and wherein each ~~[[said]]~~ node represents a graphic object having object edges, with one or more ~~[[said]]~~ of the graphic objects overlapping, ~~each said the~~ overlapping graphics objects comprising a left node region, a common region, and a right node region, said method comprising the steps of:

determining groups of one or more pixel locations, wherein the groups are bounded by the object edges;

determining, for each ~~[[said]]~~ group, whether the left and right branches of ~~[[said]]~~ the one or more binary nodes are active or inactive;

traversing, for each ~~[[said]]~~ group, ~~[[said]]~~ the expression tree, wherein the left branch of any previously traversed ~~[[said]]~~ binary node is ~~traversed to its said descendent node if ignored unless~~ the right and left branches of ~~[[said]]~~ the previously traversed binary node are active or ~~[[if]]~~ a ~~[[said]]~~ left node region is required for the binary operation of ~~[[said]]~~ the previously traversed binary node and the left branch is active and the right branch is inactive of ~~[[said]]~~ the previously traversed binary node, and wherein a right branch of any previously traversed binary node is ~~traversed to its said descendent node if ignored unless~~ the right and left branches of ~~[[said]]~~ the previously traversed binary node are active or ~~[[if]]~~ a ~~[[said]]~~ right node region is required for the binary operation of ~~[[said]]~~ the previously traversed binary node and the right branch is active and the left branch is inactive of ~~[[said]]~~ the previously traversed binary node; and

generating, for each [[said]] group, operator instructions for any [[said]] traversed binary node having active [[said]] right and left branches, and leaf value instructions for any traversed leaf node.

Claim 8 (currently amended): A method ~~as claimed in~~ according to claim 7, wherein said ~~traversing~~ traversing step traverses [[said]] the expression tree, wherein the left branch of any previously traversed [[said]] binary node is traversed to its [[said]] descendent node if the right and left branches of [[said]] the previously traversed binary node are active and if the graphic object representing [[said]] the descendent node on the right branch of [[said]] the previously traversed binary node does not obscure the graphic object representing [[said]] the descendent node on the left branch of [[said]] the previously traversed binary node in the common region of the graphic objects representing [[said]] the descendent nodes of [[said]] the previously traversed binary node, and wherein the right branch of any previously traversed [[said]] binary node is traversed to its [[said]] descendent node if the right and left branches of [[said]] the previously traversed binary node are active and if the graphic object representing [[said]] the descendent node on the left branch of [[said]] the previously traversed binary node does not obscure the graphic object representing [[said]] the descendent node on the right branch of [[said]] the previously traversed binary node in the common region of the graphic objects representing [[said]] the descendent nodes of [[said]] the previously traversed binary node.

Claim 9 (currently amended): A method of rendering an expression tree into a raster pixel image having a plurality of scanlines and a plurality of pixel locations on each

[[said]] scanline, [[said]] the expression tree having a plurality of nodes comprising one or more binary nodes and a plurality of leaf nodes, wherein each [[said]] binary node ~~having~~ has a left branch to a descendent [[said]] node and a right branch to [[a]] another descendent [[said]] node and ~~representing~~ represents a binary operation on [[said]] the two descendant nodes, and wherein each [[said]] node represents a graphic object having object edges, with one or more [[said]] graphic objects overlapping, ~~each said~~ the overlapping graphics objects comprising a left node region, a common region, and a right node region, said method comprising the steps of:

generating a table representative of [[said]] the expression tree, wherein [[said]] the table comprises a plurality of records corresponding to associated [[said]] binary nodes and leaf nodes, and each [[said]] record of ~~a said~~ an associated binary node comprises a first field indicating whether a [[said]] left region is required for operation of the operator of [[said]] the associated binary node, a second field indicating whether a right region is required for operation of the operator of [[said]] the associated binary node, a third field capable of indicating whether a [[said]] left branch of [[said]] the associated binary node is active, and a fourth field capable of indicating whether a [[said]] right branch of [[said]] the associated binary node is active;

determining groups of one or more pixel locations, wherein the groups are bounded by object edges;

determining, for each [[said]] group, whether the left and right branches of [[said]] the one or more binary nodes are active or inactive;

updating, for each [[said]] group, [[said]] the third and fourth fields of [[said]] the table for [[said]] the determined active and inactive branches;

traversing, for each [[said]] group, [[said]] the expression tree in accordance with [[said]] the updated table wherein the left branch of any previously traversed [[said]] binary node is ~~traversed to its said descendent node if ignored unless~~ the right and left branches of [[said]] the previously traversed binary node are active or [[if]] a [[said]] left node region is required for the binary operation of said previously traversed binary node and the left branch is active and the right branch is inactive of [[said]] the previously traversed binary node, and wherein a right branch of any previously traversed binary node is ~~traversed to its said descendent node if ignored unless~~ the right and left branches of [[said]] the previously traversed binary node are active or [[if]] a [[said]] right node region is required for the binary operation of [[said]] the previously traversed binary node and the right branch is active and the left branch is inactive of [[said]] the previously traversed binary node;

generating, for each [[said]] group, operator instructions for any [[said]] traversed binary node having active said right and left branches, and leaf value instructions for any traversed leaf node; and

executing, for each [[said]] group, corresponding [[said]] generated instructions so as to render [[said]] the image.

Claim 10 (currently amended): A method ~~as claimed in~~ according to claim 9,

wherein [[said]] the table further comprises for each [[said]] record of a ~~said~~ an associated binary node a fifth field indicating whether the graphic object representing [[said]] the descendent node on the right branch of [[said]] the associated binary node obscures the graphic object representing [[said]] the descendent node on the left branch of

[[said]] the associated binary node in the common region of the graphic objects representing [[said]] the descendent nodes of [[said]] the associated binary node, and a sixth field indicating whether the graphic object representing [[said]] the descendent node on the left branch of [[said]] the associated binary node obscures the graphic object representing [[said]] the descendent node on the right branch of [[said]] the associated binary node in the common region of the graphic objects representing [[said]] the descendent nodes of [[said]] the associated binary node[;], and

wherein said ~~traversing~~ traversing step traverses [[said]] the expression tree in accordance with [[said]] the updated table, wherein the left branch of any previously traversed [[said]] binary node is traversed to its [[said]] descendent node if the right and left branches of [[said]] the previously traversed binary node are active and if the graphic object representing [[said]] the descendent node on the right branch of [[said]] the previously traversed binary node does not obscure the graphic object representing [[said]] the descendent node on the left branch of [[said]] the previously traversed binary node in the common region of the graphic objects representing [[said]] the descendent nodes of [[said]] the previously traversed binary node, and wherein the right branch of any previously traversed [[said]] binary node is traversed to its [[said]] descendent node if the right and left branches of [[said]] the previously traversed binary node are active and if the graphic object representing [[said]] the descendent node on the left branch of [[said]] the previously traversed binary node does not obscure the graphic object representing [[said]] the descendent node on the right branch of [[said]] the previously traversed binary node in the common region of the graphic objects representing [[said]] the descendent nodes of [[said]] the previously traversed binary node.

Claim 11 (currently amended): A method ~~as claimed in~~ according to claim 10, wherein ~~[[said]]~~ the fifth and sixth fields are used to implement a CLIP IN or a CLIP OUT operation.

Claim 12 (currently amended): ~~Apparatus~~ An apparatus for generating instructions for a directed ~~adjacency acyclic~~ graph, ~~[[said]]~~ the directed ~~adjacency acyclic~~ graph comprising one or more parent nodes and one or more leaf nodes, each ~~of which said~~ parent node representing an operator and having branches to respective descendent nodes, and each ~~of which said~~ leaf node representing a graphic object having object edges, said apparatus comprising:

means for determining groups of one or more pixel locations,
wherein the groups are bounded by the object edges;

means for determining, for each ~~[[said]]~~ group, a portion of ~~[[said]]~~ the directed ~~adjacency acyclic~~ graph in accordance with activities of the operators, wherein the ~~[[said]]~~ portion of the directed ~~adjacency acyclic~~ graph is that portion which passes data up the directed ~~adjacency acyclic~~ graph; and

means for generating, for each ~~[[said]]~~ group, instructions for the determined portion of the directed ~~adjacency acyclic~~ graph, wherein operator instructions are generated for those operators of the determined portion of the directed ~~adjacency acyclic~~ graph having active branches and wherein leaf instructions are generated for those graphic objects which are active at ~~[[said]]~~ the group of one or more pixel locations.

Claim 13 (currently amended): ~~Apparatus as claimed in~~ An apparatus according to claim 12, wherein said apparatus further comprises means for generating a table for storing data concerning the activity of the operators and the activity of the branches of the parent nodes.

Claim 14 (currently amended): ~~Apparatus as claimed in~~ An apparatus according to claim 13, wherein said means for determining ~~[[means]]~~ groups comprises means for updating, for each ~~[[said]]~~ group, the ~~[[said]]~~ data stored in ~~[[said]]~~ the generated table.

Claim 15 (currently amended): ~~Apparatus as claimed in~~ An apparatus according to claim 12, wherein said means for generating instructions comprises means for traversing ~~[[said]]~~ the portion of the directed ~~adjacency~~ acyclic graph and means for generating instructions for active operators and leaf value instructions in ~~[[said]]~~ the portion of the directed ~~adjacency~~ acyclic graph.

Claim 16 (currently amended): ~~Apparatus as claimed in~~ An apparatus according to claim 12, wherein ~~[[said]]~~ the directed ~~adjacency~~ acyclic graph is an expression tree.

Claim 17 (currently amended): ~~Apparatus as claimed in~~ An apparatus according to claim 12, wherein ~~[[said]]~~ the parent nodes represent binary operators.

Claim 18 (currently amended): ~~Apparatus~~ An apparatus for generating instructions for an expression tree, ~~[[said]]~~ the expression tree having a plurality of nodes comprising one or more binary nodes and a plurality of leaf nodes, wherein each ~~[[said]]~~ binary node ~~having~~ has a left branch to a descendent ~~[[said]]~~ node and a right branch to ~~[[a]]~~ another descendent ~~[[said]]~~ node and ~~representing~~ represents a binary operation on ~~[[said]]~~ the two descendant nodes, and wherein each ~~[[said]]~~ node represents a graphic object having object edges, with one or more ~~[[said]]~~ graphic objects overlapping, ~~each said~~ the overlapping graphics objects comprising a left node region, a common region, and a right node region, said apparatus comprising:

means for determining groups of one or more pixel locations,
wherein the groups are bounded by the object edges;

means for determining, for each ~~[[said]]~~ group, whether the left and right branches of ~~[[said]]~~ one or more binary nodes are active or inactive;

means for traversing, for each ~~[[said]]~~ group, ~~[[said]]~~ the expression tree, wherein the left branch of any previously traversed ~~[[said]]~~ binary node is ~~traversed to its said descendent node if ignored unless~~ the right and left branches of ~~[[said]]~~ the previously traversed binary node are active or ~~[[if]]~~ a ~~[[said]]~~ left node region is required for the binary operation of ~~[[said]]~~ the previously traversed binary node and the left branch is active and the right branch is inactive of ~~[[said]]~~ the previously traversed binary node, and wherein a right branch of any previously traversed binary node is ~~traversed to its said descendent node if ignored unless~~ the right and left branches of ~~[[said]]~~ the previously traversed binary node are active or ~~[[if]]~~ a ~~[[said]]~~ right node region is required for the

binary operation of the previously traversed binary node and the right branch is active and the left branch is inactive of the previously traversed binary node; and means for generating, for each group, operator instructions for any traversed binary node having active right and left branches, and leaf value instructions for any traversed leaf node.

Claim 19 (currently amended): ~~Apparatus as claimed in~~ An apparatus according to claim 18, wherein said ~~traversing~~ traversing means traverses the expression tree, wherein the left branch of any previously traversed said binary node is traversed to its descendent node if the right and left branches of the previously traversed binary node are active and if the graphic object representing the descendent node on the right branch of the previously traversed binary node does not obscure the graphic object representing the descendent node on the left branch of the previously traversed binary node in the common region of the graphic objects representing the descendent nodes of the previously traversed binary node, and wherein the right branch of any previously traversed binary node is traversed to its descendent node if the right and left branches of the previously traversed binary node are active and if the graphic object representing the descendent node on the left branch of the previously traversed binary node does not obscure the graphic object representing the descendent node on the right branch of the previously traversed binary node in the common region of the graphic objects representing the descendent nodes of the previously traversed binary node.

Claim 20 (currently amended): ~~Apparatus~~ An apparatus for rendering an expression tree into a raster pixel image having a plurality of scanlines and a plurality of pixel locations on each ~~[[said]]~~ scanline, ~~[[said]]~~ the expression tree having a plurality of nodes comprising one or more binary nodes and a plurality of leaf nodes, wherein each ~~[[said]]~~ binary node ~~having~~ has a left branch to a descendent ~~[[said]]~~ node and a right branch to ~~[[a]]~~ another descendent ~~[[said]]~~ node and ~~representing~~ represents a binary operation on ~~[[said]]~~ the two descendant nodes, and wherein each ~~[[said]]~~ node represents a graphic object having object edges, with one or more ~~[[said]]~~ graphic objects overlapping, ~~each said~~ the overlapping graphics objects comprising a left node region, a common region, and a right node region, said apparatus comprising:

means for generating a table representative of ~~[[said]]~~ the expression tree, wherein ~~[[said]]~~ the table comprises a plurality of records corresponding to associated ~~[[said]]~~ binary nodes and leaf nodes, and each ~~[[said]]~~ record of ~~a said~~ an associated binary node comprises a first field indicating whether a ~~[[said]]~~ left region is required for operation of the operator of ~~[[said]]~~ the associated binary node, a second field indicating whether a right region is required for operation of the operator of ~~[[said]]~~ the associated binary node, a third field capable of indicating whether a ~~[[said]]~~ left branch of ~~[[said]]~~ the associated binary node is active, and a fourth field capable of indicating whether a ~~[[said]]~~ right branch of ~~[[said]]~~ the associated binary node is active;

means for determining groups of one or more pixel locations,
wherein the groups are bounded by the object edges;

means for determining, for each ~~[[said]]~~ group, whether the left and right branches of ~~[[said]]~~ the one or more binary nodes are active or inactive;

means for updating, for each [[said]] group, [[said]] the third and fourth fields of [[said]] the table for [[said]] the determined active and inactive branches;

means for traversing, for each [[said]] group, [[said]] the expression tree in accordance with [[said]] the updated table wherein the left branch of any previously traversed [[said]] binary node is ~~traversed to its said descendent node if ignored unless~~ the right and left branches of [[said]] the previously traversed binary node are active or [[if]] a [[said]] left node region is required for the binary operation of [[said]] the previously traversed binary node and the left branch is active and the right branch is inactive of [[said]] the previously traversed binary node, and wherein a right branch of any previously traversed binary node is ~~traversed to its said descendent node if ignored unless~~ the right and left branches of [[said]] the previously traversed binary node are active or [[if]] a [[said]] right node region is required for the binary operation of [[said]] the previously traversed binary node and the right branch is active and the left branch is inactive of [[said]] the previously traversed binary node;

means for generating, for each [[said]] group, operator instructions for any [[said]] traversed binary node having active said right and left branches, and leaf value instructions for any traversed leaf node; and

means for executing, for each [[said]] group, corresponding [[said]] generated instructions so as to render [[said]] the image.

Claim 21 (currently amended): ~~Apparatus as claimed in~~ An apparatus according to claim 20,

wherein the table further comprises for each record of ~~a said~~ an associated binary node a fifth field indicating whether the graphic object representing the descendent node on the right branch of the associated binary node obscures the graphic object representing the descendent node on the left branch of the associated binary node in the common region of the graphic objects representing the descendent nodes of the associated binary node, and a sixth field indicating whether the graphic object representing the descendent node on the left branch of the associated binary node obscures the graphic object representing the descendent node on the right branch of the associated binary node in the common region of the graphic objects representing the descendent nodes of the associated binary node~~[[;]]~~, and

wherein said ~~traversing~~ traversing means traverses the expression tree in accordance with the updated table, wherein the left branch of any previously traversed binary node is traversed to its descendent node if the right and left branches of the previously traversed binary node are active and if the graphic object representing the descendent node on the right branch of the previously traversed binary node does not obscure the graphic object representing the descendent node on the left branch of the previously traversed binary node in the common region of the graphic objects representing the descendent nodes of the previously traversed binary node, and wherein the right branch of any previously traversed binary node is traversed to its descendent node if the right and left branches of the previously traversed binary node are active and if the graphic object representing the descendent node on the left branch of the

previously traversed binary node does not obscure the graphic object representing [[said]] the descendent node on the right branch of [[said]] the previously traversed binary node in the common region of the graphic objects representing [[said]] the descendent nodes of [[said]] the previously traversed binary node.

Claim 22 (currently amended): ~~Apparatus as claimed in~~ An apparatus according to claim 21, wherein [[said]] the fifth and sixth fields are used to implement a CLIP IN or a CLIP OUT operation.

Claim 23 (currently amended): A computer readable medium comprising a computer program for generating instructions for a directed ~~adjacency~~ acyclic graph, [[said]] the directed ~~adjacency~~ acyclic graph comprising one or more parent nodes and one or more leaf nodes, each ~~of which said~~ parent node representing an operator and having branches to respective descendent nodes, and each ~~of which said~~ leaf node representing a graphic object having object edges, said computer program comprising:

code for determining groups of one or more pixel locations, wherein the groups are bounded by the object edges;

code for determining, for each [[said]] group, a portion of [[said]] the directed ~~adjacency~~ acyclic graph in accordance with activities of the operators, wherein the [[said]] portion of the directed ~~adjacency~~ acyclic graph is that portion which passes data up the directed ~~adjacency~~ acyclic graph; and

code for generating, for each [[said]] group, instructions for the determined portion of the directed ~~adjacency~~ acyclic graph, wherein operator instructions

are generated for those operators of the determined portion of the directed ~~adjacency~~ acyclic graph having active branches and wherein leaf instructions are generated for those graphic objects which are active at ~~[[said]]~~ the group of one or more pixel locations.

Claim 24 (currently amended): A computer readable medium ~~as claimed in~~ according to claim 23, wherein said computer program further comprises code for generating a table for storing data concerning the activity of the operators and the activity of the branches of the parent nodes.

Claim 25 (currently amended): A computer readable medium ~~as claimed in~~ according to claim 24, wherein said code for determining ~~[[code]]~~ groups comprises code for updating, for each ~~[[said]]~~ group, the ~~[[said]]~~ data stored in ~~[[said]]~~ the generated table.

Claim 26 (currently amended): A computer readable medium ~~as claimed in~~ according to claim 23, wherein said code for generating instructions comprises code for traversing ~~[[said]]~~ the portion of the directed ~~adjacency~~ acyclic graph and code for generating instructions for active operators and leaf value instructions in ~~[[said]]~~ the portion of the directed ~~adjacency~~ acyclic graph.

Claim 27 (currently amended): A computer readable medium ~~as claimed in~~ according to claim 23, wherein ~~[[said]]~~ the directed ~~adjacency~~ acyclic graph is an expression tree.

Claim 28 (currently amended): A computer readable medium ~~as claimed in~~
according to claim 23, wherein ~~[[said]]~~ the parent nodes represent binary operators.

Claim 29 (currently amended): A computer readable medium comprising a
computer program for generating instructions for an expression tree, ~~[[said]]~~ the expression
tree having a plurality of nodes comprising one or more binary nodes and a plurality of leaf
nodes, wherein each ~~[[said]]~~ binary node ~~having~~ has a left branch to a descendent ~~[[said]]~~
node and a right branch to ~~[[a]]~~ another descendent ~~[[said]]~~ node and ~~representing~~
represents a binary operation on ~~[[said]]~~ the two descendant nodes, and wherein each
~~[[said]]~~ node represents a graphic object having object edges, with one or more ~~[[said]]~~
graphic objects overlapping, ~~each said~~ the overlapping graphics objects comprising a left
node region, a common region, and a right node region, said computer program comprising:
code for determining groups of one or more pixel locations, wherein
the groups are bounded by the object edges;

code for determining, for each ~~[[said]]~~ group, whether the left and
right branches of ~~[[said]]~~ the one or more binary nodes are active or inactive;

code for traversing, for each ~~[[said]]~~ group, ~~[[said]]~~ the expression
tree, wherein the left branch of any previously traversed ~~[[said]]~~ binary node is ~~traversed to~~
~~its said descendent node if ignored unless~~ the right and left branches of ~~[[said]]~~ the
previously traversed binary node are active or ~~[[if]]~~ a ~~[[said]]~~ left node region is required
for the binary operation of ~~[[said]]~~ the previously traversed binary node and the left branch
is active and the right branch is inactive of ~~[[said]]~~ the previously traversed binary node,
and wherein a right branch of any previously traversed binary node is ~~traversed to its said~~

~~descendent node if ignored unless~~ the right and left branches of ~~[[said]]~~ the previously traversed binary node are active or ~~[[if]]~~ a ~~[[said]]~~ right node region is required for the binary operation of ~~[[said]]~~ the previously traversed binary node and the right branch is active and the left branch is inactive of ~~[[said]]~~ the previously traversed binary node; and

code for generating, for each ~~[[said]]~~ group, operator instructions for any ~~[[said]]~~ traversed binary node having active ~~[[said]]~~ right and left branches, and leaf value instructions for any traversed leaf node.

Claim 30 (currently amended): A computer readable medium ~~as claimed in~~ according to claim 29, wherein said ~~traversing~~ traversing code traverses ~~[[said]]~~ the expression tree, wherein the left branch of any previously traversed ~~[[said]]~~ binary node is traversed to its ~~[[said]]~~ descendent node if the right and left branches of ~~[[said]]~~ the previously traversed binary node are active and if the graphic object representing ~~[[said]]~~ the descendent node on the right branch of ~~[[said]]~~ the previously traversed binary node does not obscure the graphic object representing ~~[[said]]~~ the descendent node on the left branch of ~~[[said]]~~ the previously traversed binary node in the common region of the graphic objects representing ~~[[said]]~~ the descendent nodes of ~~[[said]]~~ the previously traversed binary node, and wherein the right branch of any previously traversed ~~[[said]]~~ binary node is traversed to its ~~[[said]]~~ descendent node if the right and left branches of ~~[[said]]~~ the previously traversed binary node are active and if the graphic object representing ~~[[said]]~~ the descendent node on the left branch of ~~[[said]]~~ the previously traversed binary node does not obscure the graphic object representing ~~[[said]]~~ the descendent node on the right branch

of [[said]] the previously traversed binary node in the common region of the graphic objects representing [[said]] the descendent nodes of [[said]] the previously traversed binary node.

Claim 31 (currently amended): A computer readable medium comprising a computer program for rendering an expression tree into a raster pixel image having a plurality of scanlines and a plurality of pixel locations on each [[said]] scanline, [[said]] the expression tree having a plurality of nodes comprising one or more binary nodes and a plurality of leaf nodes, wherein each [[said]] binary node ~~having~~ has a left branch to a descendent [[said]] node and a right branch to [[a]] another descendent [[said]] node and representing represents a binary operation on [[said]] the two descendant nodes, and wherein each [[said]] node represents a graphic object having object edges, with one or more [[said]] graphic objects overlapping, ~~each said~~ the overlapping graphics objects comprising a left node region, a common region, and a right node region, said computer program comprising:

code for generating a table representative of [[said]] the expression tree, wherein [[said]] the table comprises a plurality of records corresponding to associated [[said]] binary nodes and leaf nodes, and each [[said]] record of ~~a said~~ an associated binary node comprises a first field indicating whether a [[said]] left region is required for operation of the operator of [[said]] the associated binary node, a second field indicating whether a right region is required for operation of the operator of [[said]] the associated binary node, a third field capable of indicating whether a [[said]] left branch of [[said]] the associated binary node is active, and a fourth field capable of indicating whether a [[said]] right branch of [[said]] the associated binary node is active;

code for determining groups of one or more pixel locations, wherein
the groups are bounded by the object edges;

code for determining, for each [[said]] group, whether the left and
right branches of [[said]] the one or more binary nodes are active or inactive;

code for updating, for each [[said]] group, [[said]] the third and
fourth fields of [[said]] the table for [[said]] the determined active and inactive branches;

code for traversing, for each [[said]] group, [[said]] the expression
tree in accordance with [[said]] the updated table wherein the left branch of any previously
traversed [[said]] binary node is ~~traversed to its said descendent node if ignored unless~~ the
right and left branches of [[said]] the previously traversed binary node are active or [[if]] a
[[said]] left node region is required for the binary operation of [[said]] the previously
traversed binary node and the left branch is active and the right branch is inactive of [[said]]
the previously traversed binary node, and wherein a right branch of any previously
traversed binary node is ~~traversed to its said descendent node if ignored unless~~ the right and
left branches of [[said]] the previously traversed binary node are active or [[if]] a [[said]]
right node region is required for the binary operation of [[said]] the previously traversed
binary node and the right branch is active and the left branch is inactive of [[said]] the
previously traversed binary node;

code for generating, for each [[said]] group, operator instructions for
any [[said]] traversed binary node having active [[said]] right and left branches, and leaf
value instructions for any traversed leaf node; and

code for executing, for each [[said]] group, corresponding [[said]]
generated instructions so as to render [[said]] the image.

Claim 32 (currently amended): A computer readable medium ~~as claimed in~~ according to claim 31, wherein ~~[[said]]~~ the table further comprises for each ~~[[said]]~~ record of ~~a said~~ an associated binary node a fifth field indicating whether the graphic object representing ~~[[said]]~~ the descendent node on the right branch of ~~[[said]]~~ the associated binary node obscures the graphic object representing ~~[[said]]~~ the descendent node on the left branch of ~~[[said]]~~ the associated binary node in the common region of the graphic objects representing ~~[[said]]~~ the descendent nodes of ~~[[said]]~~ the associated binary node, and a sixth field indicating whether the graphic object representing ~~[[said]]~~ the descendent node on the left branch of ~~[[said]]~~ the associated binary node obscures the graphic object representing ~~[[said]]~~ the descendent node on the right branch of ~~[[said]]~~ the associated binary node in the common region of the graphic objects representing ~~[[said]]~~ the descendent nodes of ~~[[said]]~~ the associated binary node~~[[;]]~~, and

wherein said ~~tranversing~~ traversing means traverses ~~[[said]]~~ the expression tree in accordance with ~~[[said]]~~ the updated table, wherein the left branch of any previously traversed ~~[[said]]~~ binary node is traversed to its ~~[[said]]~~ descendent node if the right and left branches of ~~[[said]]~~ the previously traversed binary node are active and if the graphic object representing ~~[[said]]~~ the descendent node on the right branch of ~~[[said]]~~ the previously traversed binary node does not obscure the graphic object representing ~~[[said]]~~ the descendent node on the left branch of ~~[[said]]~~ the previously traversed binary node in the common region of the graphic objects representing ~~[[said]]~~ the descendent nodes of ~~[[said]]~~ the previously traversed binary node, and wherein the right branch of any previously traversed ~~[[said]]~~ binary node is traversed to its ~~[[said]]~~ descendent node if the right and left branches of ~~[[said]]~~ the previously traversed binary node are active and if the

graphic object representing ~~[[said]]~~ the descendent node on the left branch of ~~[[said]]~~ the previously traversed binary node does not obscure the graphic object representing ~~[[said]]~~ the descendent node on the right branch of ~~[[said]]~~ the previously traversed binary node in the common region of the graphic objects representing ~~[[said]]~~ the descendent nodes of ~~[[said]]~~ the previously traversed binary node.

Claim 33 (currently amended): A computer program ~~as claimed in~~ according to claim 32, wherein ~~[[said]]~~ the fifth and sixth fields are used to implement a CLIP IN or a CLIP OUT operation.